IN THE CLAIMS:

Kindly change claims 1, 9, 25, 34 through 38, and 40, all to read as follows.

1. (currently amended) Apparatus for printing a desired image on a printing medium, based upon input image data, by construction from individual marks of at least one colorant, formed in a pixel grid; said apparatus comprising:

for each colorant, at least one respective multielement printing array that is subject to colorant-deposition error, including error in image intensity;

means for measuring such colorant-deposition error of the at least one array;

means for modifying a multicolumn, multirow numerical tabulation that forms a mapping between such input image data and such marks, to compensate for the measured colorant-deposition error, including error in image intensity; and

means for printing using the modified mapping.

2. (original) The apparatus of claim 1, wherein the mapping is selected from the group consisting of:

an optical-density transformation of the image data to such construction from individual marks; and

a spatial-resolution relationship between the image data and such pixel grid.

3. (original) The apparatus of claim 2, wherein:

the optical-density transformation comprises a half-toning matrix; and

the spatial-resolution relationship comprises a scaling of the image data to such pixel grid.

4. (previously presented) The apparatus of claim 1, wherein:

said at least one multielement printing array comprises a plurality of multielement printing arrays that print in a corresponding plurality of different colors or color dilutions, respectively, each multielement printing array being subject to a respective colorant-deposition error; and

the measuring means and the mapping-modifying means each operate with respect to each one of the plurality of multielement printing arrays respectively.

5. (original) The apparatus of claim 4, wherein:

for at least one of the plurality of multielement printing arrays, the colorant-deposition error comprises a respective pattern of printing-density defects; and wherein:

the measuring means comprise means for measuring the pattern of printing-density defects for each multielement printing array respectively; and

the modifying means comprising means for applying the respective pattern of defects, for at least one of the multielement printing arrays, to modify a respective said mapping.

6. (original) The apparatus of claim 4, wherein:

for at least one of the plurality of multielement printing arrays, the colorant-deposition error comprises a swath-height error;

the measuring means comprise means for measuring the swath-height error for each multielement printing array respectively; and

the modifying means comprise means for applying the respective swath-height error, for at least one of the multielement printing arrays, to modify a respective said mapping.

7. (previously presented) The apparatus of claim 1, wherein:

the colorant-deposition error comprises a pattern of printing-density defects;

the measuring means comprise means for measuring the pattern of printing-density defects;

the modifying means comprise:

means for deriving a correction pattern from the measured pattern of printing-density defects, and

means for applying the correction pattern to modify a halftone thresholding process; and

for each colorant, the printing means comprise means for printing such image incrementally, using the modified halftone thresholding process.

8. (previously presented) The apparatus of claim 1, wherein:

the colorant-deposition error comprises a swath-height error or otherwise corresponds to an optimum distance of printing-medium advance;

the measuring means comprise means for measuring the swath-height error or determining the optimum distance;

the modifying means comprise:

means for deriving a correction pattern from the measured swath-height error or determined optimum distance, and

means for applying the correction pattern to modify a halftone thresholding process; and

for each colorant, the printing means comprise means for printing such image incrementally, using the modified halftone thresholding process.

9. (currently amended) A method of printing a desired image, by construction from individual marks of at least one colorant, formed in a pixel grid by at least one multielement printing array that is subject to a pattern of printing-density defects, including error in image intensity; said method comprising the steps of:

measuring such pattern of printing-density defects;

deriving a correction pattern from the measured pattern of printing-density defects, including error in image intensity;

applying the correction pattern to modify a halftone thresholding process that uses a halftoning matrix which is a predefined numerical array;

wherein the applying step comprises preparing a modified form of the predefined numerical array, and then using that modified form of the array; and

for each said colorant, printing such image by said at least one multielement array respectively, using the modified halftone thresholding process.

10. (previously presented) The method of claim 9, for use with a printmask in plural-pass printing, said printmask being a defined system of numerical values, distinct from the measured pattern of defects and distinct from the derived correction pattern, that establishes the printing pass in which each ink mark is to be made; and further comprising the steps of, before or as a part of the applying step:

using such printmask to determine a relationship between the halftone matrix and the multielement array; and

employing the relationship in the applying step to control application of the correction pattern to the halftone matrix.

11. (original) The method of claim 9, wherein:

the printing step comprises single-pass printing.

12. (original) The method of claim 9, for use with said at least one multielement incremental-printing array that comprises a plurality of scanning multielement printing arrays that print in a corresponding plurality of different colors or color dilutions, each multielement printing array being subject to a respective swath-height error; and wherein:

the measuring, deriving, applying and printing steps are employed to modify swath height of at least one of the scanning multielement printing arrays, for accommodating any swath-height error present in each multielement printing array respectively.

13. (original) The method of claim 9, for use with said at least one multielement incremental-printing array that comprises a plurality of multielement printing arrays that print in a corresponding plurality of different colors or color dilutions, each multielement printing array being subject to a respective pattern of printing-density defects; and wherein:

the measuring, deriving, applying and printing steps are each performed with respect to each multielement printing array respectively.

14. (original) The method of claim 13, for use with such plurality of multielement incremental-printing arrays that are also each subject to a respective swath-height error; and wherein:

the measuring, deriving, applying and printing steps are also employed to modify swath height of at least one of the multielement printing arrays, for accommodating any swath-height error present in each multielement printing array respectively.

15. (original) The method of claim 9, wherein:

the halftone thresholding process comprises definition of a halftone matrix.

16. (original) The method of claim 9, wherein:

the halftone thresholding process comprises an error-diffusion protocol.

17. (original) The method of claim 16, wherein the error-diffusion protocol comprises at least one of:

a progressive error-distribution allocation protocol of such error-diffusion halftoning; and

a decisional protocol for determining whether to mark a particular pixel.

18. (original) The method of claim 9, wherein:

the applying step comprises replacing values above or below a threshold value.

19. (original) The method of claim 9, wherein:

the applying step comprises multiplying values by a linear factor.

20. (original) The method of claim 9, wherein:

the applying step comprises applying a gamma correction function to values.

21. (original) The method of claim 9, wherein the modifying step comprises a combination of at least two of:

replacing values above or below a threshold value;

multiplying each values by a linear factor; and

applying a gamma correction function to values.

22. (original) The method of claim 9, wherein:

for each of the plurality of multielement arrays, the measuring, deriving and applying steps are each performed at most only one time for a full image.

23. (original) The method of claim 9, wherein:

the applying step comprises modifying the darkness of substantially each mark printed by an individual printing element whose density is defective.

24. (original) The method of claim 9, wherein:

the applying step comprises modifying the average number of dots printed by an individual printing element whose density is defective.

25. (currently amended) A method of printing a desired image, based on input image data, by construction from individual marks of at least one colorant, formed in a pixel grid by at least one scanning multielement printing array; said printing being subject to print-quality defects due to departure of printing-medium advance from an optimum value, and also including error in image intensity; said method comprising the steps of:

measuring a parameter related to such print-quality defects;

based on the measured parameter, scaling such input image data to compensate for said departure; and

for each said colorant, printing such marks with said at least one scanning multielement array using the scaled input image data.

26. (original) The method of claim 25, wherein:

the parameter comprises such print-quality defects; and

the measuring step comprises measuring such print-quality defects.

27. (original) The method of claim 26, wherein:

the defects comprise swath-height error; and

the measuring step comprises measuring swath-height error.

28. (original) The method of claim 26, wherein:
the defects comprise area-fill nonuniformity; and
the measuring step comprises:

using a sensing system to measure area-fill nonuniformity for plural printing-medium advance values, and

selecting a printing-medium advance value that corresponds to minimum area-fill non-uniformity.

29. (original) The method of claim 25, wherein:
the parameter comprises such optimum value; and
the measuring step comprises determining such optimum value.

30. (original) The method of claim 25, for use with said at least one scanning multielement printing array that comprises a plurality of multielement printing arrays that print in a corresponding plurality of different colors or color dilutions, each multielement printing array being subject to a respective swath-height error; wherein:
the measuring, scaling and printing steps are each performed with respect to each multielement printing array respectively.

31. (previously presented) The method of claim 30, wherein:

at least some of the different printing arrays have optimum advance values or swath-height values that are, respectively, different from one another; and

the printing step comprises:

comparing optimum advance values or swath-height values measured for the plurality of multielement printing arrays respectively, to find the smallest of said values;

selecting a particular multielement printing array whose said value is substantially the smallest;

using, in common for the plurality of printing arrays, substantially said selected smallest value; and

for substantially each array other than the particular array, operating with a respective reduced number of printing elements and with rescaled data, to match an actual effective swath height of the particular array.

32. (original) The method of claim 31, wherein:

said smallest of said values is determined taking into account the maximum available number of printing elements in the corresponding array.

33. (original) The method of claim 25, further comprising the step of:

after the scaling step, iterating the measuring and scaling steps to allow for nonlinearity in such print-quality defects.

34. (currently amended) Apparatus for printing a desired image on a printing medium, based upon input image data, by construction from individual marks formed in a pixel grid; said apparatus comprising:

at least one multielement incremental-printing array that is subject to colorant-deposition error, including error in image intensity;

means for measuring such colorant-deposition error of the at least one array;

means for modifying a multicolumn, multirow numerical tabulation that forms a mapping between such input image data and such marks, to compensate for the measured colorant-deposition error, including error in image intensity; and

means for printing using the modified mapping;

wherein the multielement printing array is an inkjet printhead.

35. (currently amended) A method of printing a desired image, by construction from individual marks formed in a pixel grid by at least one multielement printing array that is subject to a pattern of printing-density defects, including error in image intensity; said method comprising the steps of:

measuring such pattern of printing-density defects, including error in image intensity;

deriving a correction pattern from the measured pattern of printing-density defects;

applying the correction pattern to modify a halftone thresholding process that uses a halftoning matrix which is a predefined numerical array;

wherein the applying step comprises preparing a modified form of the predefined numerical array, and then using that modified form of the array, to correct the error in image intensity; and

printing such image using the modified halftone thresholding process;

wherein the multielement printing array is an inkjet printhead.

36. (currently amended) A method of printing a desired image, based on input image data, by construction from individual marks formed in a pixel grid by at least one scanning multielement printing array; said printing being subject to print-quality defects due to departure of printing-medium advance from an optimum value, and also including error in image intensity; said method comprising the steps of:

measuring a parameter related to such print-quality defects;

based on the measured parameter, scaling such input image data to compensate for said departure; and

printing such image using the scaled input image data;

wherein the multielement printing array is an inkjet printhead.

37. (currently amended) Apparatus for printing a desired image on a printing medium, based upon input image data, by construction from individual marks of at least one colorant, formed in a pixel grid; said apparatus comprising:

for each colorant, respective means for printing incrementally in that colorant;

each said printing means, for a particular one colorant, comprising at least one respective incremental-printing array that is subject to colorant-deposition error, including error in image intensity;

means for measuring such colorant-deposition error of the at least one array;

means for modifying a multicolumn, multirow numerical tabulation that forms a mapping between such input image data and such marks, to compensate for the measured colorant-deposition error, including error in image intensity;

wherein the numerical tabulation is not a halftone screen; and

means for printing using the modified mapping.

38. (currently amended) Apparatus for printing a desired image on a printing medium, based upon input image data, by construction from individual marks formed in a pixel grid; said apparatus comprising:

at least one multihundred-element printing array that is subject to colorant-deposition error, including error in image intensity;

means for measuring such colorant-deposition error of the at least one array;

means for modifying a multicolumn, multirow numerical tabulation that forms a mapping between such input image data and such marks, to compensate for the measured colorant-deposition error, including error in image intensity; and

means for printing using the modified mapping.

39. (previously presented) The apparatus of claim 38, wherein:

the multihundred-element array has at least three hundred printing elements.

40. (currently amended) Apparatus for printing a desired image on a printing medium, based upon input image data, by construction from individual marks formed in a pixel grid; said apparatus comprising:

at least one multielement incremental printing array, having at least thirty printing elements, that is subject to colorant-deposition error, including error in image intensity;

means for measuring such colorant-deposition error of the at least one array;

means for modifying a multicolumn, multirow numerical tabulation that forms a mapping between such input image data and such marks, to compensate for the measured colorant-deposition error, including error in image intensity; and

means for printing using the modified mapping.

41. (previously presented) The apparatus of claim 40, wherein:

the at least one multielement incremental printing array comprises a scanning printhead or a full-page-width printhead.

42. (previously presented) The apparatus of claim 40, wherein:

the printing means comprise at least one microprocessor controlling all of the at least thirty elements simultaneously during printing to select, and selectively actuate, particular elements for printing of particular pixels respectively.